CE MARK TECHNICAL FILE

AS/NZS EMC CONSTRUCTION FILE

of

Socket 478 PentiumR 4/CeleronR D/Celeron Processor Card with VGA/Dual Gigabit LAN/

Model

PCA-6186

Contains:

1. Declaration of Conformity
2. EN55022/CISPR 22; EN55011/CISPR 11, AS/NZS CISPR 22 EMI test report
3. EN55024, AS/NZS CISPR 24, EN61000-6-2:2001, EN61000-3-2 / AS/NZS 61000.3.2, and EN61000-3-3 / AS/NZS 61000.3.3 test report
4. Block Diagram and Schematics
5. User`s manual

Declaration of Conformity

Name of Manufacturer:	Advantech Co., Ltd.
Address of Manufacturer:	No.1,Alley 20,Lane 26,Rueiguang Road, Neihu District, Taipei 114 Taiwan, R.O.C.
Declares that product:	Socket 478 PentiumR 4/CeleronR D/Celeron Processor Card with VGA/Dual Gigabit LAN/
Model:	PCA-6186
Assembled by: Address:	Same as above Same as above

Conforms to the EMC Directive 89/336/EEC as attested by conformity with the following harmonized standards:

EN55022: 1998/A1: 2000; EN55011: 1998/A1:1999; AS/NZS CISPR 22: 2002: Limits and methods
of measurement of Radio Interference characteristics of Information Technology Equipment.

EN55024: 1998/A1:2001/A2: 2003; EN61000-6-2:2001, AS/NZS CISPR 24: 1997: Information technology equipment-Immunity characteristics-Limits and methods of measurement.

Standard	Description	Results	Criteria
EN61000-4-2: 1995/A1: 1998/A2: 2001 IEC61000-4-2: 2001 AS/NZS 61000.4.2: 2002	Electrostatic Discharge	Pass A	A
EN61000-4-3: 2000/A1: 2002 IEC61000-4-3: 2002 AS/NZS 61000.4.3: 1999	Radio-Frequency, Electromagnetic Field	Pass A	A
EN61000-4-4: 1995/A1: 2001/A2: 2001 IEC61000-4-4: 1995+A1:2000+A2:2001 AS/NZS 61000.4.4: 1999	Electrical Fast Transient/Burst	Pass A	A
EN61000-4-5: 1995/A1: 2001 IEC61000-4-5: 2001 AS/NZS 61000.4.5: 1999	Surge	Pass A	A

<to be continued>

EN61000-4-6: 1996/A1: 2001 IEC61000-4-6: 2001 AS/NZS 61000.4.6: 1999	Conductive Disturbance	Pass A	A
EN61000-4-8: 1993/A1: 2001 IEC61000-4-8: 2001 AS/NZS 61000.4.8: 2002	Power Frequency Magnetic Field	Pass A	A
EN61000-4-11: 1994/A1: 2001 AS/NZS 61000.4.11: 1999	Voltage Dips / Short Interruption and Voltage Variation		
	>95% in 10ms	Pass A	A
	30% in 500ms	Pass A	A
	>95% in 5000ms	Pass B	B

IEC61000-4-11: 2001	Voltage Dips / Short Interruption and Voltage Variation		
	>95% in 10ms	Pass A	A
	30% in 500ms	Pass A	A
	60% in 100ms	Pass A	A
	>95% in 5000ms	Pass B	B

Standard	Description	Results
EN61000-3-2: 2000 AS/NZS 61000.3.2: 2003	Limits for harmonics current emissions	Pass
EN61000-3-3: 1995 A1: 2001/ AS/NZS 61000.3.3: 1998	Limits for voltage fluctuations and flicker in low-voltage supply systems.	Pass

We, Advantech Co., Ltd., hereby declare that the equipment bearing the trade name and model number specified above was tested conforming to the applicable Rules under the most accurate measurement standards possible, and that all the necessary steps have been taken and are in force to assure that production units of the same equipment will continue to comply with the requirements.

Advantech Co., Ltd.

Date: 2005/06/16

Declaration of Conformity

Name of Manufacturer:	Advantech Co., Ltd.
Address of Manufacturer:	No.1,Alley 20,Lane 26,Rueiguang Road, Neihu District, Taipei 114 Taiwan, R.O.C.
Declares that product:	Socket 478 PentiumR 4/CeleronR D/Celeron Processor Card with VGA/Dual Gigabit LAN/
Model:	PCA-6186
Assembled by:	Same as above
Address:	Same as above

Conforms to the C-Tick Mark requirement as attested by conformity with the following standards:

EN55022: 1998/A1: 2000 ; EN55011: 1998/A1:1999; AS/NZS CISPR 22: 2002: Limits and methods
of measurement of Radio Interference characteristics of Information Technology Equipment.

EN55024: 1998/A1:2001/A2: 2003; EN61000-6-2:2001, AS/NZS CISPR 24: 1997: Information technology equipment-Immunity characteristics-Limits and methods of measurement.

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EN61000-4-3: 2000/A1: 2002 IEC61000-4-3: 2002 AS/NZS 61000.4.3: 1999	Radio-Frequency, Electromagnetic Field	Pass A	A
EN61000-4-4: 1995/A1: 2001/A2: 2001 IEC61000-4-4: 1995+A1:2000+A2:2001 AS/NZS 61000.4.4: 1999	Electrical Fast Transient/Burst	Pass A	A
EN61000-4-5: 1995/A1: 2001 IEC61000-4-5: 2001 AS/NZS 61000.4.5: 1999	Surge	Pass A	A

<to be continued>

EN61000-4-6: 1996/A1: 2001 IEC61000-4-6: 2001 AS/NZS 61000.4.6: 1999	Conductive Disturbance	Pass A	A
EN61000-4-8: 1993/A1: 2001 IEC61000-4-8: 2001 AS/NZS 61000.4.8: 2002	Power Frequency Magnetic Field	Pass A	A
EN61000-4-11: 1994/A1: 2001 AS/NZS 61000.4.11: 1999	Voltage Dips / Short Interruption and Voltage Variation		
	>95% in 10ms	Pass A	A
	30% in 500ms	Pass A	A
	>95% in 5000ms	Pass B	B

IEC61000-4-11: 2001	Voltage Dips / Short Interruption and Voltage Variation		
	>95% in 10ms	Pass A	A
	30% in 500ms	Pass A	A
	60% in 100ms	Pass A	A
	>95% in 5000ms	Pass B	B

Standard	Description	Results
EN61000-3-2: 2000 AS/NZS 61000.3.2: 2003	Limits for harmonics current emissions	Pass
EN61000-3-3: 1995 A1: 2001/ AS/NZS 61000.3.3: 1998	Limits for voltage fluctuations and flicker in low-voltage supply systems.	Pass

We, Advantech Co., Ltd., hereby declare that the equipment bearing the trade name and model number specified above was tested conforming to the applicable Rules under the most accurate measurement standards possible, and that all the necessary steps have been taken and are in force to assure that production units of the same equipment will continue to comply with the requirements.

Advantech Co., Ltd.

Date: 2005/06/16

INTERNATIONAL STANDARDS LABORATORY

No. 65, Ku Dai Keng St., Hsichih, Taipei 221, R.O. C. Tel: 886-2-2646-2550 FAX: 886-2-26464641
No. 120, Lane 180, San Ho Tsuen, Hsin Ho Rd. Lung-Tan Hsiang,
Tao Yuan County 325, Taiwan, R.O.C. Tel: 886-3-407-1718 FAX:886-3-407-1738

Certificate

Test Report No.: 05HE084C ; 05HE084E
Issue Date: 2005/06/16

Product Name:	Socket 478 PentiumR 4/CeleronR D/Celeron Processor Card with VGA/Dual Gigabit LAN/
Model Number(s):	**PCA-6186**
Responsible Party	**Advantech Co., Ltd.**
Address:	No.1,Alley 20,Lane 26,Rueiguang Road,Neihu District, Taipei 114, Taiwan, R.O.C.

We, **International Standards Laboratory**, hereby certify that:

The device bearing the trade name and model specified above has been shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in EUROPEAN COUNCIL DIRECTIVE 89/336/EEC. The device was passed the test performed according to :

EN55022: 1998/A1: 2000 ;EN55011:1998+A1:1999; AS/NZS CISPR 22: 2002: Limits and methods of measurement of Radio Interference characteristics of Information Technology Equipment.

EN55024: 1998/A1:2001/A2: 2003; EN61000-6-2:2001, AS/NZS CISPR 24: 1997: Information technology equipment-Immunity characteristics-Limits and methods of measurement.

EN61000-4-2: 1995/A1: 1998/A2: 2001 IEC61000-4-2: 2001 AS/NZS 61000.4.2: 2002	EN61000-4-6: 1996/A1: 2001 IEC61000-4-6: 2001 AS/NZS 61000.4.6: 1999
EN61000-4-3: 2000/A1: 2002 IEC61000-4-3: 2002 AS/NZS 61000.4.3: 1999	EN61000-4-8: 1993/A1: 2001 IEC61000-4-8: 2001 AS/NZS 61000.4.8: 2002
EN61000-4-4: 1995/A1: 2001/A2: 2001 IEC61000-4-4: 1995+A1:2000+A2:2001 AS/NZS 61000.4.4: 1999	EN61000-4-11: 1994/A1: 2001 IEC61000-4-11: 2001 AS/NZS 61000.4.11: 1999
EN61000-4-5: 1995/A1: 2001 IEC61000-4-5: 2001 AS/NZS 61000.4.5: 1999	

INTERNATIONAL STANDARDS LABORATORY

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Tao Yuan County 325, Taiwan, R.O.C. Tel: 886-3-407-1718 FAX:886-3-407-1738

EN61000-3-2: 2000/AS/NZS 61000.3.2: 2003: Limits for harmonics current emissions.
EN61000-3-3: 1995/A1: 2001/ AS/NZS 61000.3.3: 1998: Limits for voltage fluctuations and flicker in low-voltage supply systems.
I attest to the accuracy of data and all measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Eddy Hsiung

Eddy Hsiung/Director

(NVLAP Lab. Code: 200234-0)

EN55024 / AS/NZS CISPR 24 / IMMUNITY
EN61000-3-2 / HARMONICS
EN61000-3-3 / VOLTAGE FLUCTUATIONS

TEST REPORT

of

Socket 478 PentiumR 4/CeleronR D/Celeron Processor Card with VGA/Dual Gigabit LAN/

Mode

PCA-6186

Applied by:

Advantech Co., Ltd.
No.1,Alley 20,Lane 26,Rueiguang Road,Neihu District,
Taipei 114
Taiwan, R.O.C.

Test Performed by:

(NVLAP Lab. Code: 200234-0)
International Standards Laboratory

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1. General

1.1 Certification of Accuracy of Test Data

Applicant: **Advantech Co., Ltd.**
No.1,Alley 20,Lane 26,Rueiguang Road,Neihu District,
Taipei 114
Taiwan, R.O.C.

Equipment Tested: Socket 478 PentiumR 4/CeleronR D/Celeron Processor Card with VGA/Dual Gigabit LAN/

Model: PCA-6186

Date of test: 2005/06/08

Test Site: HC Test Site

Test Engineer: James Kuo ----------
James Kuo

Approve & Signature

Eddy Hsiung ----------
Eddy Hsiung/Director

Test results given in this report apply only to the specific sample(s) tested under stated test conditions.
This report shall not be reproduced other than in full without the explicit written consent of ISL. This report totally contains 33 pages, including 1 cover page , 1 contents page, and 31 pages for the test description.
This report must not be use to claim product endorsement by NVLA, NIST, any agency of the federal government.

This test report accurately contains the test results of the above standards at the time of the test.
The results in this report apply only to the sample(s) tested.
This test report shall not be reproduced except in full, without the written approval of International Standards Laboratory.

2. Summary

2.1 Operation Environment

Power supply : AC 230 V / 50 Hz

2.2 Test Standards

The immunity tests which this report describes were conducted by an independent electromagnetic compatibility consultant, International Standards Laboratory in accordance with the

EN55024: 1998/A1:2001/A2: 2003; EN61000-6-2:2001, AS/NZS CISPR 24: 1997: Information technology equipment-Immunity characteristics-Limits and methods of measurement.

Standard	Description	Results	Criteria
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EN61000-4-5: 1995/A1: 2001 IEC61000-4-5: 2001 AS/NZS 61000.4.5: 1999	Conductive Disturbance	Pass A	A
EN61000-4-8: 1993/A1: 2001 IEC61000-4-8: 2001 AS/NZS 61000.4.8: 2002	Power Frequency Magnetic Field	Pass A	A
EN61000-4-11: 1994/A1: 2001 IEC61000-4-11: 2001 AS/NZS 61000.4.11: 1999	Voltage Dips / Short Interruption and Voltage Variation		
	>95% in 10ms	Pass A	A
	30% in 500ms	Pass A	A
ONLY ON IEC61000-4-11: 2001	60% in 100ms	Pass A	A
	>95% in 5000ms	Pass B	B

Standard	Description	Results
EN61000-3-2: 2000 AS/NZS 61000.3.2: 2003	Limits for harmonics current emissions	Pass
EN61000-3-3: 1995 A1: 2001/ AS/NZS 61000.3.3: 1998	Limits for voltage fluctuations and flicker in low-voltage supply systems.	Pass

2.3 Description of Support Equipment

Support Unit 1.

Description:	USB 2.0 Card Reader/Writer
Model Number:	UID12W
Serial Number:	N/A
Power Supply Type:	From USB Port
USB 2.0 Port:	one 4-pin
SD/MMC Card Slot:	one
SecureDigital Card (Option):	SD (Model: SD-M16B1) 16MB
USB Cable:	Shielded, Detachable (With Cord)
FCC ID:	(Comply with FCC DOC)

Support Unit 2.

Description:	USB 2.0 Card Reader/Writer
Model Number:	UID12W
Serial Number:	N/A
Power Supply Type:	From USB Port
USB 2.0 Port:	one 4-pin
SD/MMC Card Slot:	one
SecureDigital Card (Option):	SD (Model: SD-M16B1) 16MB
USB Cable:	Shielded, Detachable (With Cord)
FCC ID:	(Comply with FCC DOC)

Support Unit 3.

Description:	Acer USB Mouse
Model Number:	MUSXT
Serial Number:	81130099
Power Supply Type:	N/A
Power Cord:	N/A
FCC ID:	(comply with FCC DOC)

Support Unit 4.

Description:	Acer USB Mouse
Model Number:	MUSXT
Serial Number:	81130107
Power Supply Type:	N/A
Power Cord:	N/A
FCC ID:	(comply with FCC DOC)

Support Unit 5.

Description:	DELL USB Mouse
Model Number:	M-UR69
Serial Number:	LNA24412741
Power Supply Type:	N/A
Power Cord:	N/A
FCC ID:	N/A (Comply with FCC DOC)

Support Unit 6.

Description:	Acer USB Keyboard
Model Number:	6511-HA
Serial Number:	9122H070818D711684S00000
Power Supply Type:	N/A
Power Cord:	N/A
FCC ID:	N/A (comply with FCC DOC)

Support Unit 7.

Description:	HP Printer (for parallel interface port)
Model Number:	C2642E
Serial Number:	N/A
Power Supply Type:	AC Adaptor (HP Model: C2175A)
Power Cord:	Non-shielded, Detachable
Data Cable:	Shielded, Detachable, With Metal Hood
FCC ID:	N/A

Support Unit 8.

Description:	Aceex Modem (for serial interface port)
Model Number:	DM1414
Serial Number:	0301000558
Power Supply Type:	Linear, Power Adapter (AC to AC Xfmr, Wall Mounted Type)
Power Cord:	Nonshielded, Without Grounding Pin
FCC ID:	IFAXDM1414

Support Unit 9.

Description:	Aceex Modem (for serial interface port)
Model Number:	DM1414
Serial Number:	0301000557
Power Supply Type:	Linear, Power Adapter (AC to AC Xfmr, Wall Mounted Type)
Power Cord:	Nonshielded, Without Grounding Pin
FCC ID:	IFAXDM1414

Support Unit 10.

Description:	Acer Monitor
Model:	7377xe
Serial Number:	999027100501700055P644E1 P
Power Supply Type:	Switching
Power Cord:	Nonshielded, Detachable
FCC ID:	(Comply with FCC DOC)

Support Unit 11.

Description:	Acer Keyboard
Model Number:	6511-TW4C
Serial Number:	916600704C83D11076S00000
Power Supply Type:	N/A
Power Cord:	N/A
FCC ID:	JVPKBS-WIN

Support Unit 12.

Description:	DELL Notebook Personal Computer
Model:	Latitude D400
Serial Number:	N/A
CPU:	Pentium M- 1.5GHz(FSB 400 MHz)
A/C Adapter Type:	LITEON 65W (Model PA-1650-05D) 3 Pins
Hard Disk Driver:	Toshiba (Model: MK4019GAX) 40 GB
MDC Modem:	Conexant (Model: RD01-D480)
VGA Connector:	One 15 Pins
Serial Connector:	One 9 Pins
RJ11 Connector:	One 2 Pins
RJ45 Connector:	One 8 Pins
USB Connector:	Two 4 Pins
1394 Connector:	One 4 Pins
Smart Card Slot:	One
PCMCIA Slot:	One
Earphone Port:	One
Microphone Port:	One
Power In Port:	One
Battery:	Sanyo 6-cell (Model: 6T087)
RAM:	Nanya DDR 256MB x 1
LCD Panel and Inverter:	Toshiba 12.1”XGA (Model: LTM12C505D)； RICOH KEIKI Inverter (Model: K3E19T5 0090)
Power Cord:	Non-shielded, Detachable

Support Unit 13.

Description:	Acer Personal Computer
Model:	VT7200
Serial No.:	N/A
Power Supply Type:	Delta (Model: DPS-300GB-1)
Hard Disk Drive:	Maxtor (Model:53073U6)30GB
Floppy Driver:	Panasonic (Model: JU-256A047P K2)
CD-ROM Drive:	AOpen (Model: CD-952E/AKH)
VGA Card:	WinFast (Model: LRI2830)
Modem Card:	AMBIT(Model: 1456VQH20E-04)
Parallel Port:	one 25-pin
Serial Port:	two 9-pin
LAN Port:	one 8-pin
Keyboard Connector:	one 6-pin
Mouse Connector:	one 6-pin
USB Connector:	two 4-pin
Game Port:	one 15-pin
Speaker Port:	one
Microphone Port:	one
Line In Port:	one
Power Cord:	Non-shielded, Detachable

2.3.1 Software for Controlling Support Unit

Test programs exercising various part of EUT were used. The programs were executed as follows:

A. Read and write to the disk drives.
B. R/W memory card form EUT USB Port through Card Reader/Writer
C. Send H pattern to the parallel port device (Printer).
D. Send H pattern to the serial port device (Modem).
E. Send H pattern to the serial port device (Modem).
F. Send H pattern to the video port device (Monitor).
G. Send signal from EUT to server through LAN port.
H. Repeat the above steps.

	Filename	Issued Date
LAN	Ping.exe	05/05/1999
Monitor	HH.bat	8/20/1991
Modem 1	Hm.bat	8/20/1991
Modem 2	Hm.bat	8/20/1991
Printer1	Wordpad.exe	11/11/1999
Winthrax	Winthrax.exe	5/21/1996

2.3.2 I/O Cable Condition of EUT and Support Units

Description	Path	Cable Length	Cable Type	Connector Type
AC Power Cord	110V (~240V) to AC Power Cord Inlet (3-pin)	1.8M	Nonshielded, Detachable	Plastic Head
Server Data Cable	Server to PC LAN Port	33 feet	Non-shielded, Detachable	RJ-45, with Plastic Head
Keyboard Data Cable	Keyboard to PC Keyboard port	1.8M	Shielded, Undetachable	Metal Head
Monitor Data Cable	Monitor to PC VGA port	1.6M	Shielded, Un-detachable	Metal Head
Modem Data Cable	Modem to PC COM 1 port	1.5M	Shielded, Detachable	Metal Head
Modem Data Cable	Modem to PC COM 1 port	1.5M	Shielded, Detachable	Metal Head
Printer Data Cable	Printer to PC Parallel port	1.5M	Shielded, Detachable	Metal Head
USB Keyboard Data Cable	USB Keyboard to PC USB port	1.8M	Shielded, Undetachable	Metal Head
Mouse Data Cable	Mouse to PC Mouse port	1.8M	Shielded, Un-detachable	Metal Head
USB Mouse Data Cable*2	USB Mouse to PC USB port	1.8M	Shielded, Un-detachable	Metal Head
USB Data Cable*2	PC USB Port to Card Reader/Writer	1.0 M	Shielded, detachable (with cord)	Metal Head

2.4 Description of Equipment Under Test

EUT

Description:	Socket 478 PentiumR 4/CeleronR D/Celeron Processor Card with VGA/Dual Gigabit LAN/
Condition:	Pre-Production
Model:	PCA-6186
Serial Number:	N/A
CPU:	Intel P4 2.8 GHz
DIMM Memory (Option):	256MB*2
USB Connector:	fore 4-pin
COM Port:	one 9-pin
LAN Port:	two 8-pin
VGA Port:	one 15-pin
KB/MS Port:	one 6-pin

The test configuration is listed below:
The worst data using CPU: Mobile Intel P4 2.8 GHz,
Hard Disk Driver: IBM (Model: DTLA-307030) in this test report

EMI Noise Source:
Crystal: Y2 (14.318MHz), Y3 (25MHz), U38 (24MHz)
Clock Generator: U22

EMI Solution:
None.

Support Unit

Description:	Housing
Model:	PCA-6188
Power Supply Type:	DELTA (Model: DPS-300GB-1-B)
Hard Disk Driver:	IBM (Model:DTLA-307030)
CD-ROM Driver:	ASUS (Model: CD-S500/A) S/N: 0524CIH4113070-2

3. Electrostatic discharge (ESD) immunity

3.1 Electrostatic discharge (ESD) immunity test

Port:	Enclosure
Basic Standard:	EN61000-4-2/ IEC61000-4-2/ AS/NZS 61000.4.2 (details referred to Sec 2.2)
Test Level:	Air +/- 2 kV, +/- 4 kV, +/- 8 kV Contact +/- 2 kV, +/- 4 kV
Criteria:	A
Test Procedure	refer to ISL QA T04-S03
Temperature:	18 degree C
Humidity:	56%

Selected Test Point

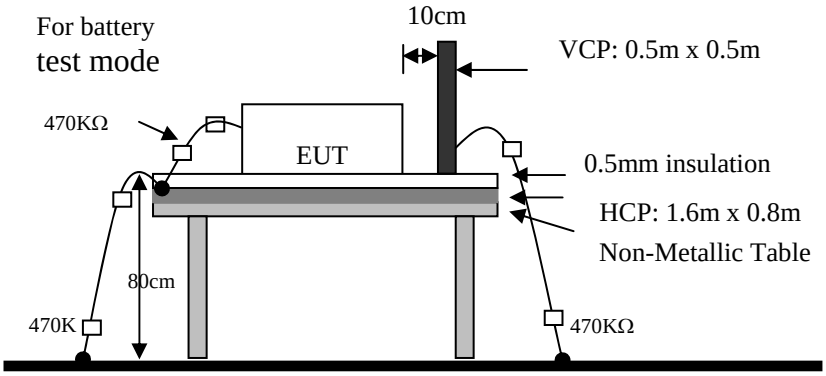
Air: discharges were applied to slots, aperture or insulating surfaces. 10 single air discharges were applied to each selected points.

Contact: Total 200 point minimum were to the selected contact points.

Indirect Contact Points: 25 discharges were applied to center of each edge of VCP and each EUT side of HCP with 10 cm away from EUT.

Test Setup

EUT is 1m from the wall and other metallic structure. When Battery test mode is needed, a cable with one 470KΩ resister at two rare ends is connected from metallic part of EUT and screwed to HCP.



Ground reference Plane

Test Result

Performance of EUT complies with the given specification.

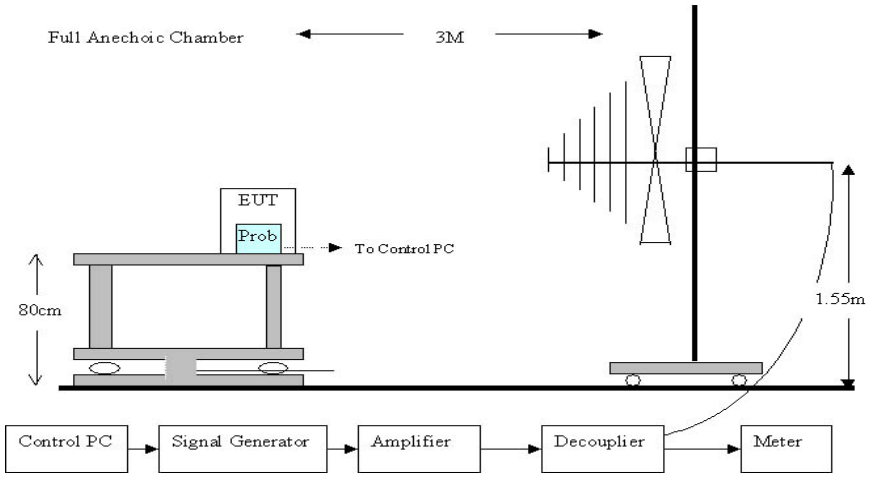
4. Radio-Frequency, Electromagnetic Field immunity

4.1 Radio-Frequency, Electromagnetic Field immunity test

Port:	Enclosure	
Basic Standard:	EN61000-4-3/ AS/NZS 61000.4.3 (details referred to Sec 2.2)	IEC61000-4-3
Test Level::	3V/m	10V/m
Modulation:	AM 1KHz 80%	
Frequency range:	80 MHz~1 GHz	
Frequency Step:	1% of last step frequency	
Step time:	800 ms	
Polarization:	Vertical and Horizontal	
EUT Azimuth Angle	☑ 0° ☑ 90° ☑ 180° ☑ 270°	
Criteria:	A	
Test Procedure	refer to ISL QA T04-S017	
Temperature:	21 degree C	
Humidity:	39%	

Test Setup

The field sensor is placed at one calibration grid point to check the intensity of the established fields on both polarizations. EUT is adjusted to have each side of EUT face coincident with the calibration plane. A CCD camera and speakers are used to monitor the condition of EUT for the performance judgment.



Test Result

Performance of EUT complies with the given specification.

5. Electrical Fast transients/burst immunity

5.1 Electrical Fast transient/burst immunity test

Port:	AC mains;	
Basic Standard:	EN61000-4-4/AS/NZS 61000.4.4 (details referred to Sec 2.2)	IEC61000-4-4
Test Level:	AC Power Port: +/- 1 kV : +/- 0.5 kV	AC Power Port: +/- 2 kV: +/- 1 kV: +/- 0.5 kV On/ I/O signal ,data and control line +/- 1 kV: +/- 0.5 kV
Rise Time:	5ns	
Hold Time:	50ns	
Repetition Frequency:	5KHz	
Criteria:	A	
Test Procedure	refer to ISL QA T04-S05	
Temperature:	18 degree C	
Humidity:	60%	

Test Procedure

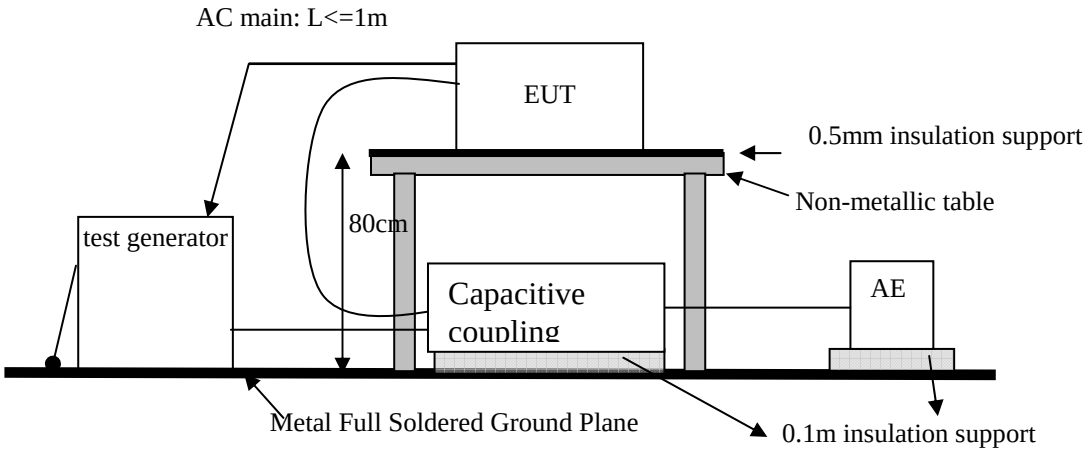
The EUT was setup on a nonconductive table 0.8 m above a reference ground plane.

Test Points	Polarity	Result	Comment
Line	+	N	60 sec
	-	N	60 sec
Neutral	+	N	60 sec
	-	N	60 sec
Ground	+	N	60 sec
	-	N	60 sec
Line to Neutral	+	N	60 sec
	-	N	60 sec
Line to Ground	+	N	60 sec
	-	N	60 sec
Neutral to Ground	+	N	60 sec
	-	N	60 sec
Line to Neutral to Ground	+	N	60 sec
	-	N	60 sec

Note: 'N' means normal, the EUT function is correct during the test.

Test Setup

EUT is at least 50cm from the conductive structure .



Test Result

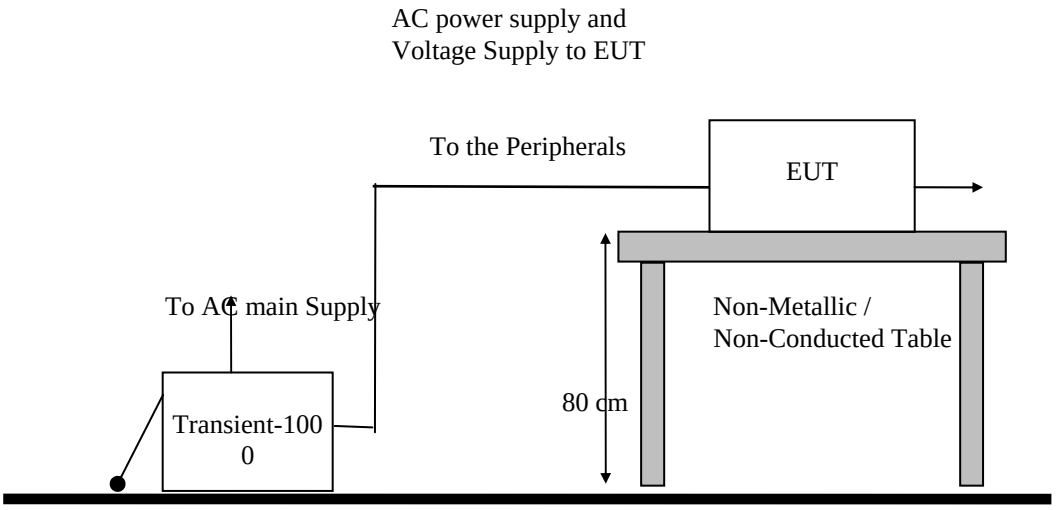
Performance of EUT complies with the given specification.

6. Surge Immunity

6.1 Surge immunity test

Port:	AC mains;
Basic Standard:	EN61000-4-5/ IEC61000-4-5/ AS/NZS 61000.4.5 (details referred to Sec 2.2)
Test Level:	**AC Power Port** Line to Line: +/- 0.5 kV, +/- 1 kV Line to Earth: +/- 0.5 kV, +/- 1 kV, +/- 2kV
Rise Time:	1.2us
Hold Time:	50us
Repetition Rate:	30 second
Angle:	☑ 0° ☑ 90° ☑ 270°
Criteria:	A
Test Procedure	refer to ISL QA T04-S04
Temperature:	18 degree C
Humidity:	56%

Test Setup



Metal Full Soldered Ground Plane

Test Result

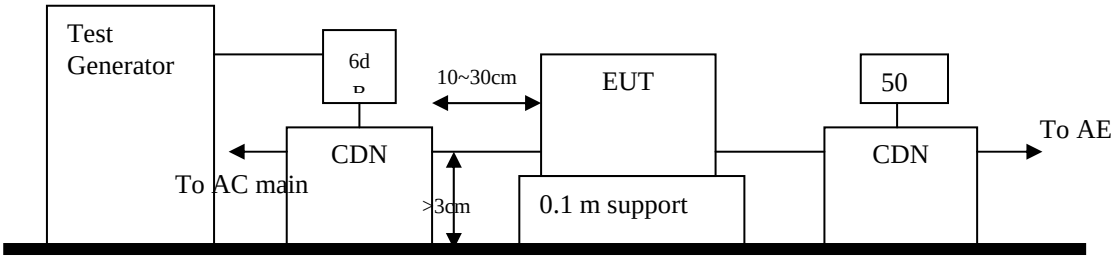
Performance of EUT complies with the given specification.

7. Immunity to Conductive Disturbance

7.1 Immunity to Conductive Disturbance

Port:	AC mains;	
Basic Standard:	EN61000-4-6/AS/NZS 61000.4.6 (details referred to Sec 2.2)	IEC61000-4-6
Test Level::	3 V	10 V
Modulation:	AM 1KHz 80%	
Frequency range:	0.15 MHz - 80MHz	
Frequency Step:	1% of last Frequency	
Step time:	1000 ms	
Criteria:	A	
Test Procedure	refer to ISL QA T04-S08	
Temperature:	18 degree C	
Humidity:	60%	

Test Setup



Reference Ground Plane

Test Result

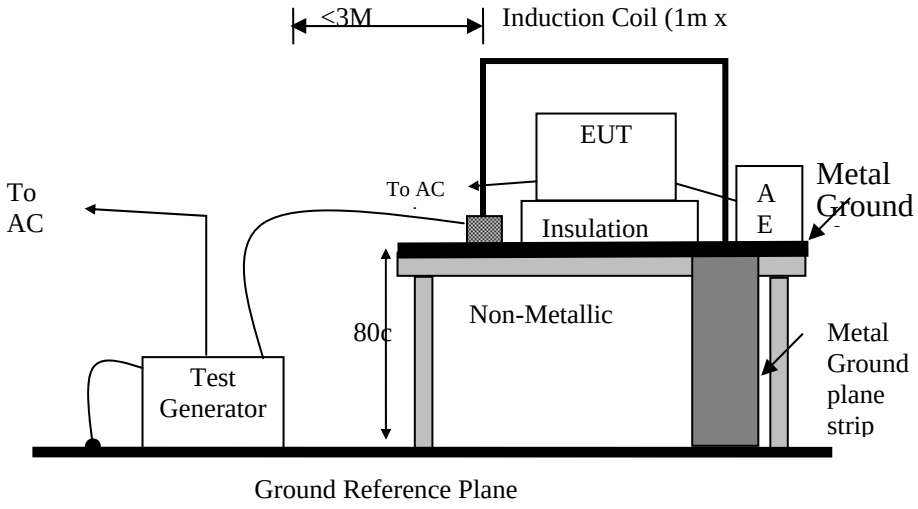
Performance of EUT complies with the given specification.

8. Power Frequency Magnetic Field immunity

8.1 Power Frequency Magnetic field immunity test

Port:	Enclosure	
Basic Standard:	EN61000-4-8/AS/NZS 61000.4.8 (details referred to Sec 2.2)	IEC61000-4-8
Test Level:	1A/m	30 A/m
Polarization:	X, Y, Z	
Criteria:	A	
Test Procedure	refer to ISL QA T04-S02	
Temperature:	18 degree C	
Humidity:	60%	

Test Setup



Test Result

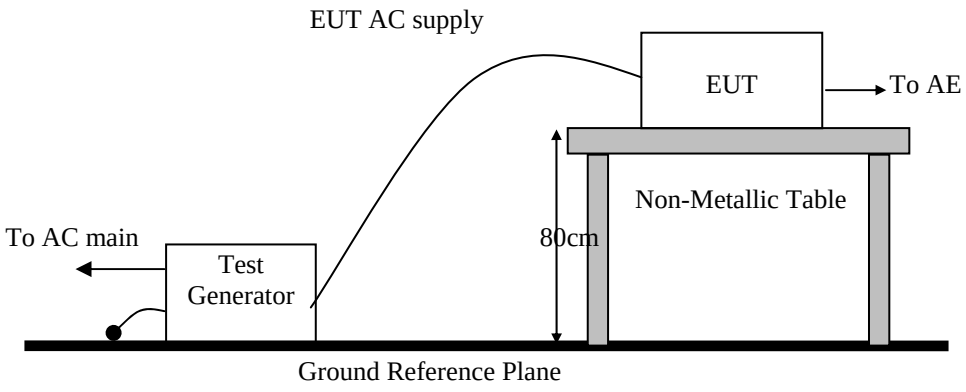
Performance of EUT complies with the given specification.

9. Voltage Dips, Short Interruption and Voltage Variation immunity

9.1 Voltage Dips, Short Interruption and Voltage Variation immunity test

Port:	AC mains	
Basic Standard:	EN61000-4-11/ AS/NZS 61000.4.11 (details referred to Sec 2.2)	IEC61000-4-11
Test Level: Criteria:	>95% in 10ms A	>95% in 10ms A
Test Level: Criteria:	30% in 500ms A	30% in 500ms A
Test Level: Criteria:		30% in 500ms A
Test Level: Criteria:	>95% in 5000ms B	>95% in 5000ms B
Phase:	0°; 180°	
Test intervals:	3 times with 10s each	
Test Procedure	refer to ISL QA T04-S01	
Temperature:	18 degree C	
Humidity:	56%	

Test Setup



Test Result

Performance of EUT complies with the given specification.

10. Harmonics

10.1 Harmonics test

Port:	AC mains
Active Input Power:	>75W
Basic Standard:	EN61000-3-2/AS/NZS 61000.3.2 (details referred to Sec 2.2)
Test Procedure	refer to ISL QA T04-S43
Test Duration:	2.5min
Class:	D

Test Procedure

The EUT is supplied in series with shunts or current transformers from a source having the same nominal voltage and frequency as the rated supply voltage and frequency of the EUT. The EUT is configured to its rated current with additional resistive load when the testing is performed.

Equipment having more than one rated voltage shall be tested at the rated voltage producing the highest harmonics as compared with the limits.

Result

Performance of EUT complies with the given specification.

Test Data

Chroma ANALYZER 6630 2005.06.08 14:14:46

Fluctuating Current Harmonics

Next measure

Setup: D 50HZ
Live
Module: M1
LP-filter

Gen setting: 1(1) U : 228.62 V fu: 49.997 Hz
Analysed periods: 16 I : 0.6190 A P: 117.9 W
Limit: Class D (EN61000_A14) I1: 0.5358 A
Note:

THD=57.25 % (PF=0.833) PASSED

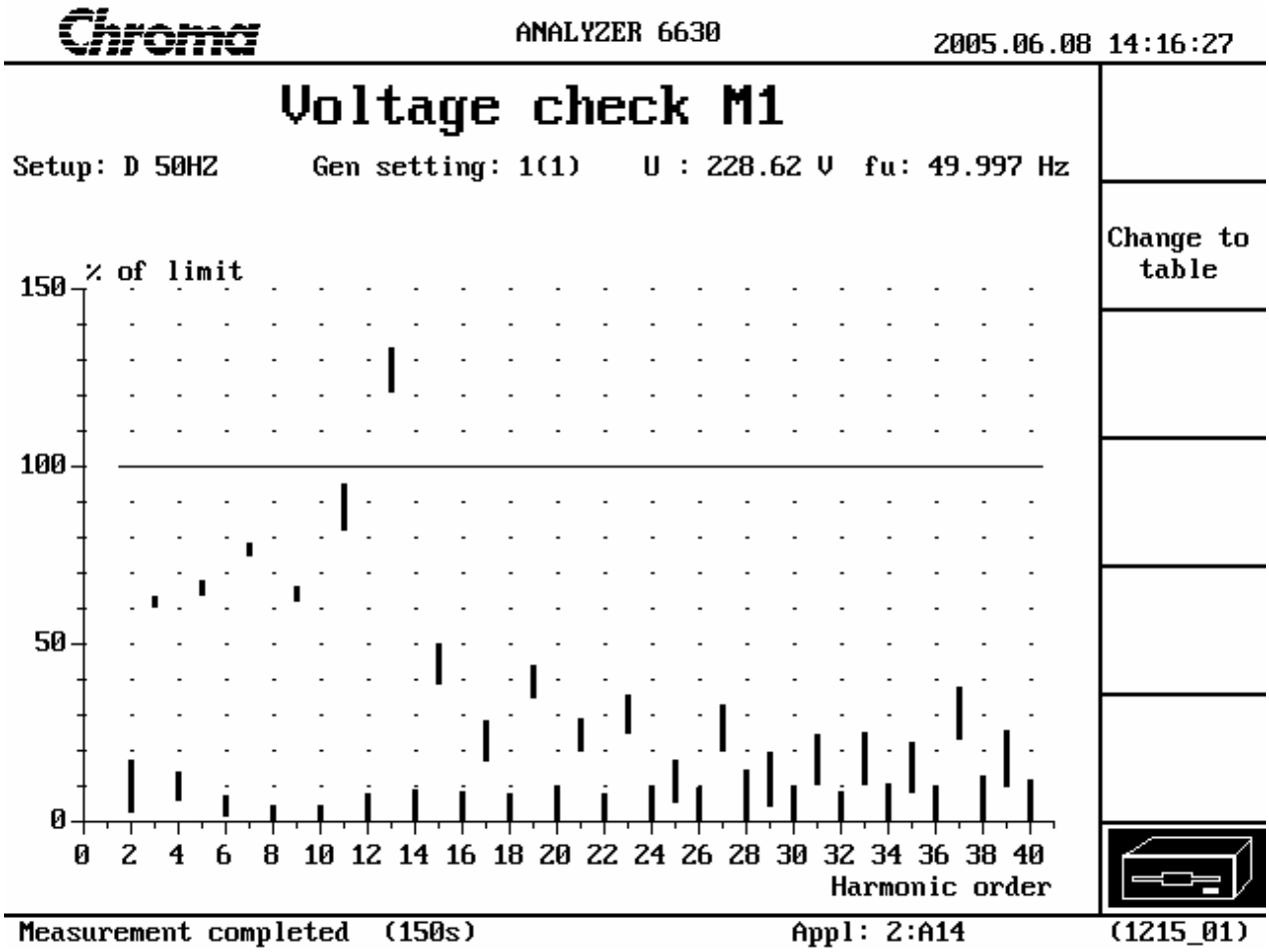
No	Mean A	Max A	Limit A	No	Mean A	Max A	Limit A
1	0.5365	0.5397		2	0.0032	0.0041	
3	0.2683	0.2697	0.4054	4	0.0020	0.0025	
5	0.1310	0.1315	0.2266	6	0.0009	0.0013	
7	0.0592	0.0598	0.1192	8	0.0004	0.0007	
9	0.0122	0.0128	0.0596	10	0.0005	0.0007	
11	0.0113	0.0117	0.0417	12	0.0005	0.0006	
13	0.0263	0.0266	0.0353	14	0.0004	0.0007	
15	0.0080	0.0083	0.0306	16	0.0005	0.0008	
17	0.0036	0.0038	0.0270	18	0.0004	0.0007	
19	0.0070	0.0075	0.0242	20	0.0004	0.0007	

(Next page, Press 'arrow down' > 1 s)

Select module

Voltage check

Measurement completed (150s) Appl: 2:A14 (1215_00)


Chroma
ANALYZER 6630
2005.06.08 14:16:27
Voltage check M1
Setup: D 50HZ
Gen setting: 1(1)
U : 228.62 V
fu: 49.997 Hz
% of limit
150
100
50
0
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40
Harmonic order
Change to table
Measurement completed (150s)
Appl: 2:A14
(1215_01)

Chroma ANALYZER 6630 2005.06.08 14:17:12

Fluctuating Current Harmonics

Setup: D 50HZ
Live
Module: M1
LP-filter

Gen setting: 1(1)
Analysed periods: 16
Limit: Class D (EN61000_A14)
Note:

U : 228.62 V fu: 49.997 Hz
I : 0.6190 A P: 117.9 W
I1: 0.5358 A

THD=57.25 % (PF=0.833)

(Previous page, Press 'arrow up' > 1 s)

21	0.0034	0.0035	0.0038	22	0.0004	0.0004	0.0006
23	0.0042	0.0042	0.0045	24	0.0004	0.0004	0.0007
25	0.0005	0.0006	0.0009	26	0.0004	0.0004	0.0007
27	0.0033	0.0034	0.0037	28	0.0004	0.0004	0.0007
29	0.0023	0.0023	0.0027	30	0.0004	0.0004	0.0007
31	0.0017	0.0017	0.0021	32	0.0003	0.0004	0.0007
33	0.0027	0.0026	0.0030	34	0.0004	0.0004	0.0007
35	0.0015	0.0017	0.0020	36	0.0005	0.0004	0.0006
37	0.0031	0.0029	0.0033	38	0.0006	0.0004	0.0007
39	0.0014	0.0014	0.0018	40	0.0005	0.0005	0.0007

Next measure

Select module

Voltage check

Measurement completed (150s) Appl: 2:A14 (1215_02)

11. Voltage Fluctuations

11.1 Voltage Fluctuations test

Port:	AC mains
Basic Standard:	EN61000-3-3/AS/ AS/NZS 61000.3.3 (details referred to Sec 2.2)
Test Procedure	refer to ISL QA T04-S44
Observation period:	For Pst 10min
	For Plt 2 hours

Test Procedure

The EUT is supplied in series with reference impedance from a power source with the voltage and frequency as the nominal supply voltage and frequency of the EUT.

Result

Performance of EUT complies with the given specification.

Test Data

Chroma ANALYZER 6630 2005.06.08 16:27:02

Extreme Flicker-I M1

Note:

Numerical Reference Impedance
U: 227.6 V I: 0.6175 A f: 49.999 Hz PF: 0.835

EVALUATION:----------

Type of observation period		Short	Long		Limit
Observation time	Tp :	10	120	min	
Maximum relative voltage change	dmax:		0.00	%	4
Max rel steady state voltage change	dc :		0.00	%	3.3
Duration of d(t) > 3.3 %	t :		0.00	s	0.2
Short term flicker severity	Pst :		0.00		1.00
Long term flicker severity	Plt :	---	0.00		0.65

Based on 12 (12) short term cycles

PASSED

Measurement completed

Next measure

Extreme time graph

Change to histogram

Write to disk

Select module

Appl: 3:-3-3 (1311_00)

12. Test Equipment List

Location	Equipment Name	Brand	Model	S/N	Last Cal. Date	Next Cal. Date
EN61K-3-2/3	DC Burn-In Load 02	D-RAM	DBS-2100	2100-910027	N/A	N/A
EN61K-3-2/3	Power Analyzer 02	Chroma	6630	1068	04/27/2005	04/27/2006
EN61K-4	Thermo-Hygro Meter -4		HD-36	ISL-C-004	12/04/2004	12/04/2006
EN61K-4-2	ESD Mouse	Precision	ESD Mouse	ESD 101-214	N/A	N/A
EN61K-4-2,4, 5,8,11	Test Generator -4	PRECISION	TRA1H01B	TRA1000-126	08/05/2004	08/05/2005
EN61K-4-3	BILOG Antenna 06	Schaffner	CBL6112B	2754	N/A	N/A
EN61K-4-3	Amplifier 800Mhz~2Ghz	SCD	ALP589	P000164-001	N/A	N/A
EN61K-4-3	Amplifier 80M~1Ghz	AR	100W1000M1	15387	N/A	N/A
EN61K-4-3	Broadband coupler 10K~220Mhz	Amplifier Research	DC2500	19810	N/A	N/A
EN61K-4-3	Broadband Coupler 80M~1GHz	Amplifier Research	DC6180	20364	N/A	N/A
EN61K-4-3	Broadband Couplier 1~4GHz	Werlatone	C5291	6516	N/A	N/A
EN61K-4-3	Coaxial Cable Chmb 04-3M-2	Belden	RG-8/U	Chmb 04-3M-2	N/A	N/A
EN61K-4-3	Signal Generator 02	HP	8648B	3642U01040	04/21/2005	04/21/2007
EN61K-4-4	Digital Oscilloscope	Tektronix	TDS 684A	B010761	N/A	N/A
EN61K-4-4	EFT Clamp	Precision	1604242	CNEFT1000-103	N/A	N/A
EN61K-4-5	CDN-Kit -4	Precision	1604243	CDNKIT1000-32	N/A	N/A
EN61K-4-5	CDN Surge Kit 01	EMC-PARTNER	CDNKIT1000T; DN-T1; DN-T2; CN-T1; CN-T2	CDNKIT1000-24	08/06/2003	08/06/2006
EN61K-4-6	6dB Attenuator	Weinschel Corp	33-6-34	BC5975	N/A	N/A
EN61K-4-6	Amplifier 4-6	Amplifier Research	150A100	1-1-R-02157	N/A	N/A
EN61K-4-6	Attenator 6dB 4-6	BIRO	100-A-FFN-06	0123	N/A	N/A
EN61K-4-6	CDN M2+M3	Frankonia	M2+M3	A3011016	05/31/2004	05/31/2005
EN61K-4-6	CDN T2 01	Frankonia	T2	A3010003	05/31/2004	05/31/2005
EN61K-4-6	CDN T4 01	FCC Inc.	FCC-801-T4	9721	05/31/2004	05/31/2005
EN61K-4-6	Coaxial Cable 4-6 01-1	Harbour Industries	M17/128-RG400	4-6 01-1	N/A	N/A
EN61K-4-6	Coaxial Cable 4-6 01-2	Harbour Industries	M17/128-RG400	4-6 01-2	N/A	N/A
EN61K-4-6	Coaxial Cable 4-6 01-3	Harbour Industries	M17/128-RG400	4-6 01-3	N/A	N/A
EN61K-4-6	KAL-AD RJ45S	BIRO			N/A	N/A
EN61K-4-6	KAL-AD T2	BIRO			N/A	N/A
EN61K-4-6	Passive Impedance Adaptor 4-6	FCC	FCC-801-150-50-CDN	9758;9759	N/A	N/A
EN61K-4-6, CISPR 13, Antenn	Signal Generator 01	HP	8656B	2635A04675	08/06/2004	08/06/2005
EN61K-4-8	Clamp Meter 4-8	TES	3090	990900322	06/11/2004	06/11/2005
EN61K-4-8	Magnetic Field Antenna	Precision	TRAIZ44B	MF1000-23	N/A	N/A

12.1 Software for Controlling Spectrum/Receiver and Calculating Test Data

Test Item	Filename	Version
EN61000-3-2	IEC1000.EXE	1.0F
EN61000-3-3	IEC1000.EXE	1.0F
EN61000-4-3	Tile.Exe	2.0.P
EN61000-4-6	EN61000-4-6 Application Software	1.13.e
EN61000-4-2	N/A	2.0
EN61000-4-4	N/A	2.0
EN61000-4-5	Tracs.Exe	2.0
EN61000-4-8	N/A	
EN61000-4-11	N/A	

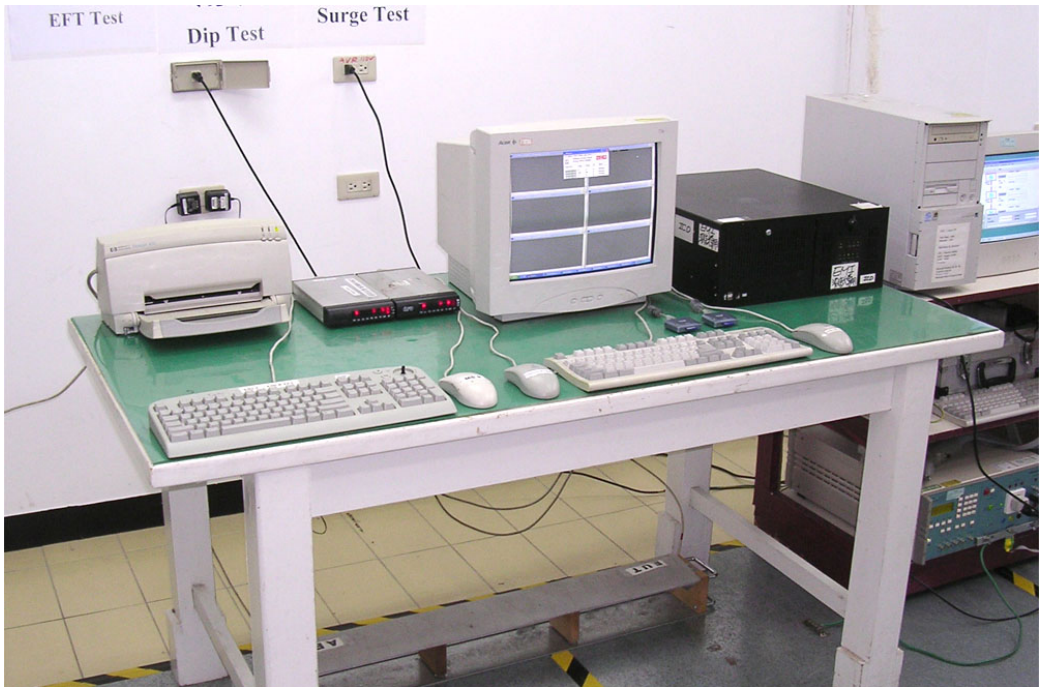
13. Photographs

13.1 Photos of ESD measurement

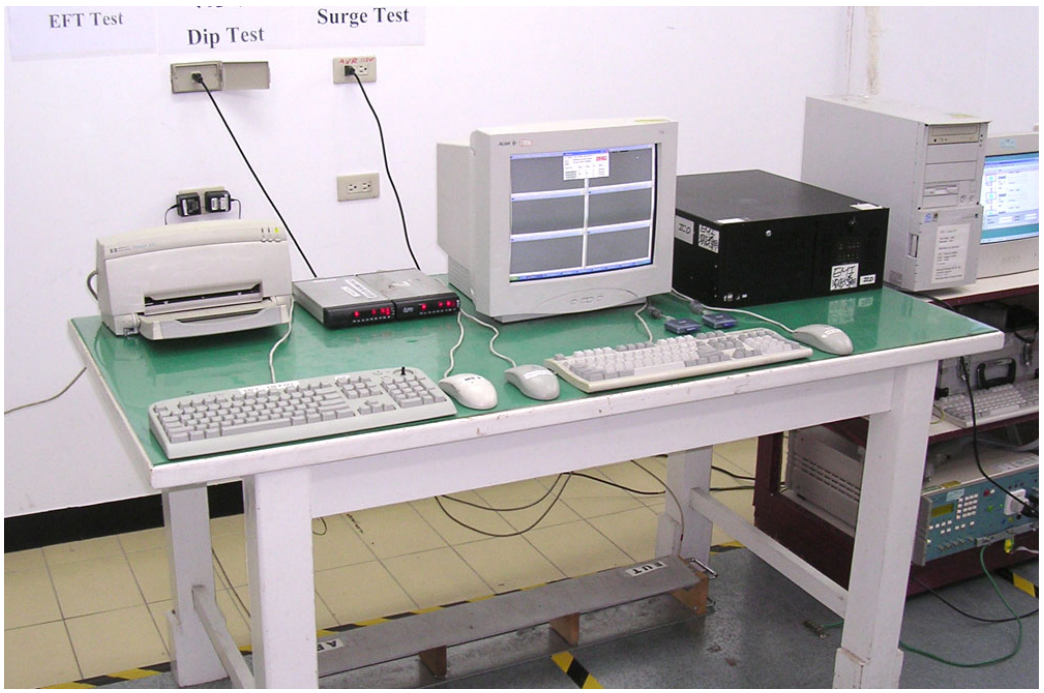
13.2 Photos of RF Field Strength Susceptibility Measurement

.

13.3 Photos of Electrical Fast Transient/Burst measurement



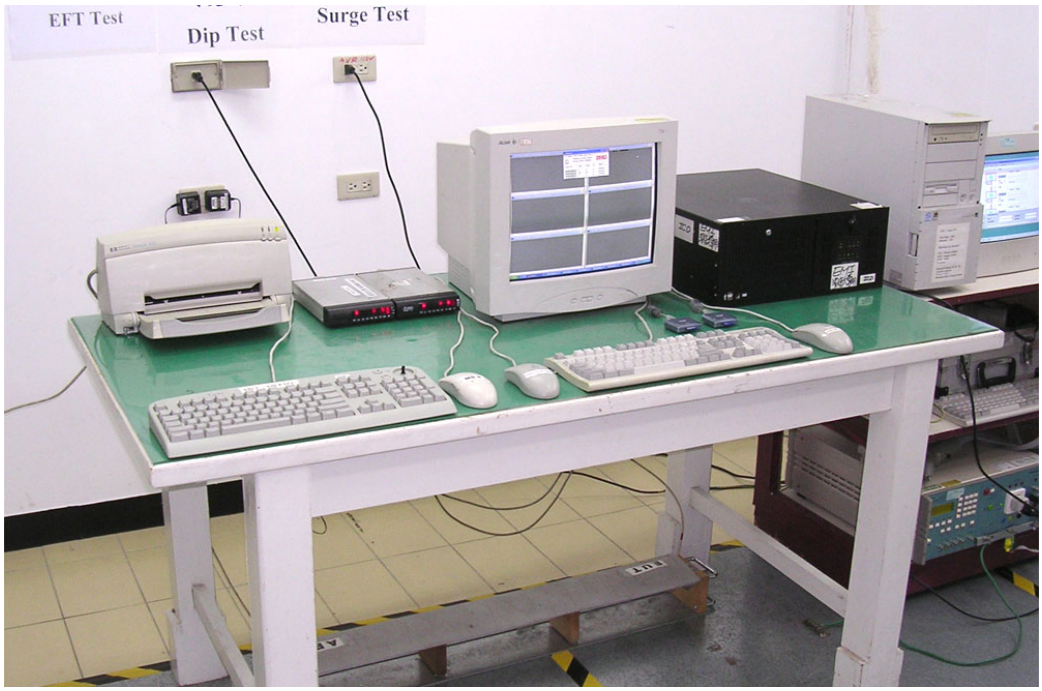
13.4 Photos of Surge measurement



13.5 Photo of Conductive Measurement

13.6 Photo of Magnetic field measurement

13.7 Photos of Voltage Dips measurement



13.8 Photos of Harmonics and Voltage Fluctuations

13.9 Appendix: Photographs of EUT

Please find this appendix in the File of **ISL-05HE084P**